Figure 1

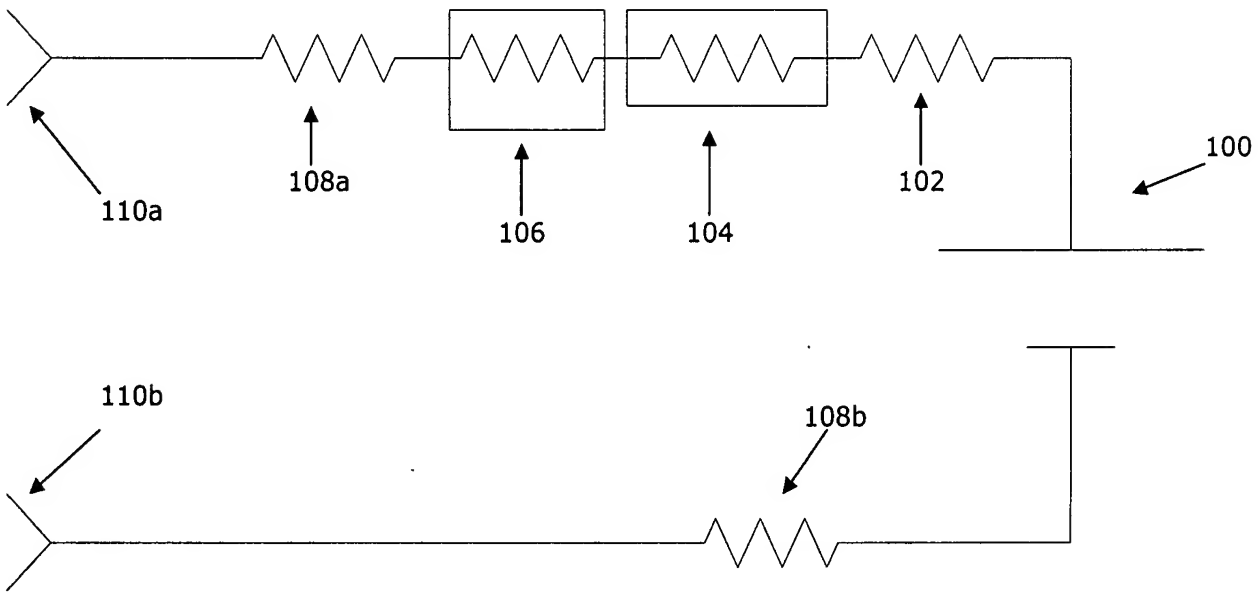
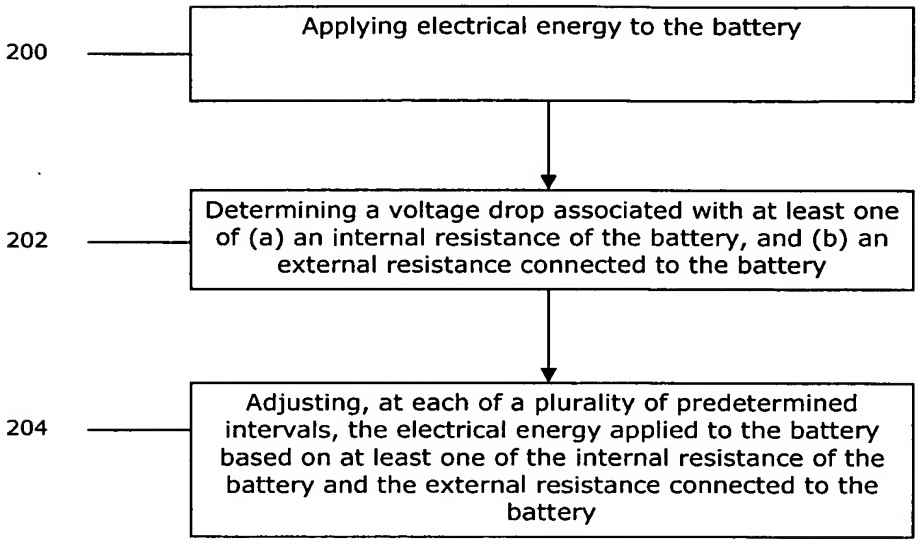


Figure 2


200
Applying electrical energy to the battery
202
Determining a voltage drop associated with at least one of (a) an internal resistance of the battery, and (b) an external resistance connected to the battery
204
Adjusting, at each of a plurality of predetermined intervals, the electrical energy applied to the battery based on at least one of the internal resistance of the battery and the external resistance connected to the battery

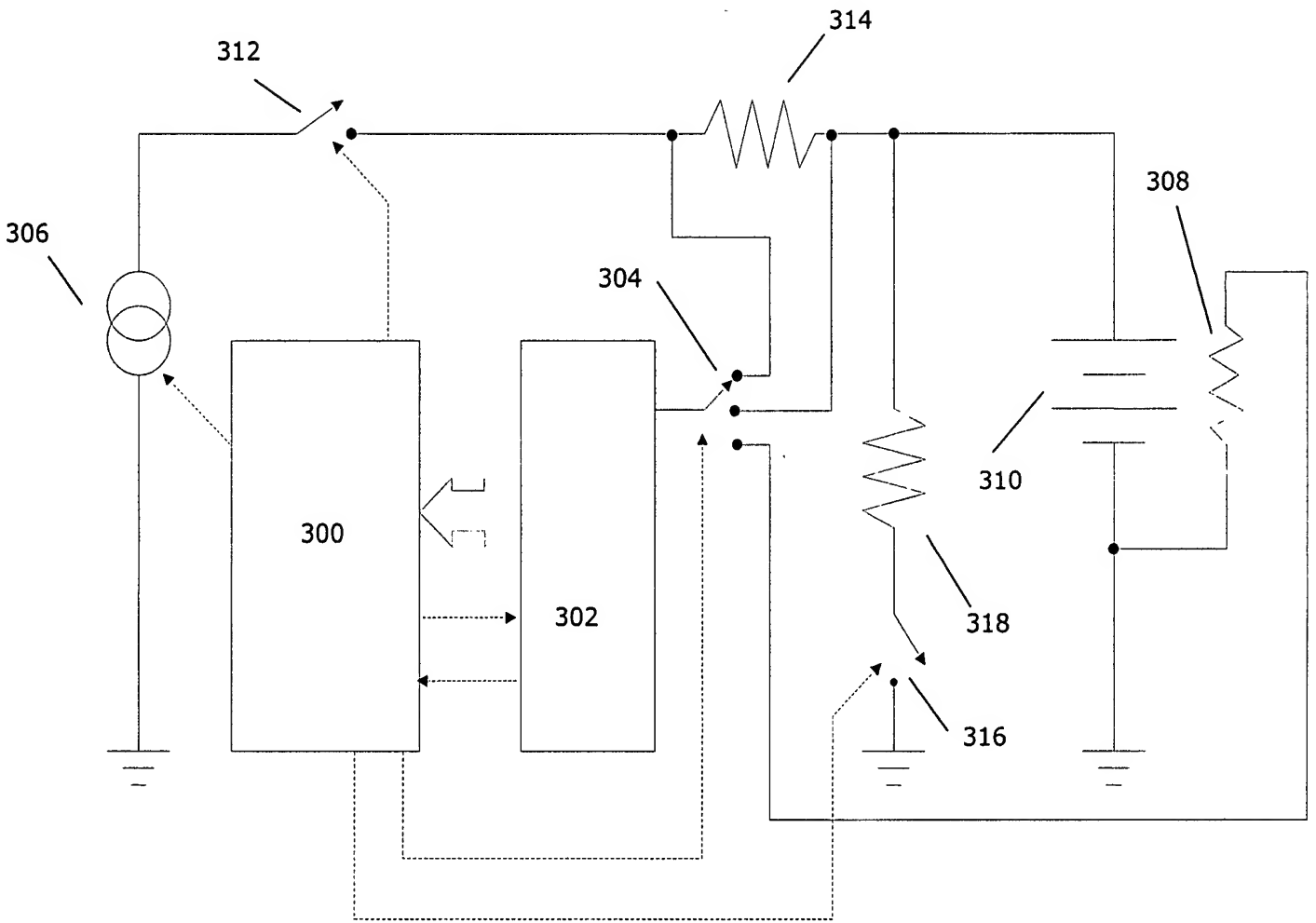
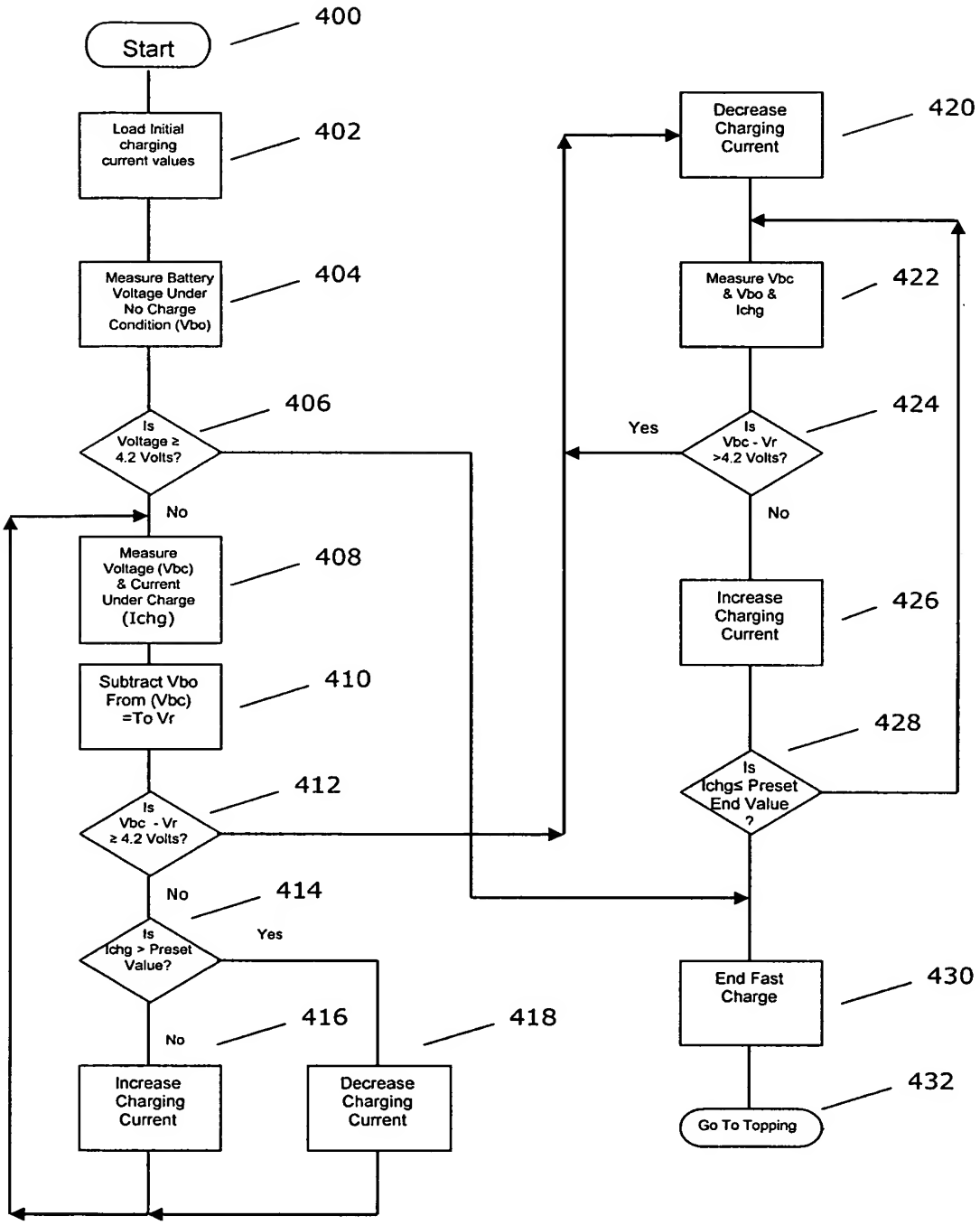


Figure 3

Figure 4


Start
400
Load Initial charging current values
402
Measure Battery Voltage Under No Charge Condition (Vbo)
404
Is Voltage ≥ 4.2 Volts?
406
No
Measure Voltage (Vbc) & Current Under Charge (Ichg)
408
Subtract Vbo From (Vbc) =To Vr
410
Is Vbc - Vr ≥ 4.2 Volts?
412
No
414
Is Ichg > Preset Value?
Yes
No
416
418
Increase Charging Current
Decrease Charging Current
Decrease Charging Current
420
Measure Vbc & Vbo & Ichg
422
Yes
Is Vbc - Vr >4.2 Volts?
424
No
Increase Charging Current
426
Is Ichg≤ Preset End Value ?
428
End Fast Charge
430
Go To Topping
432

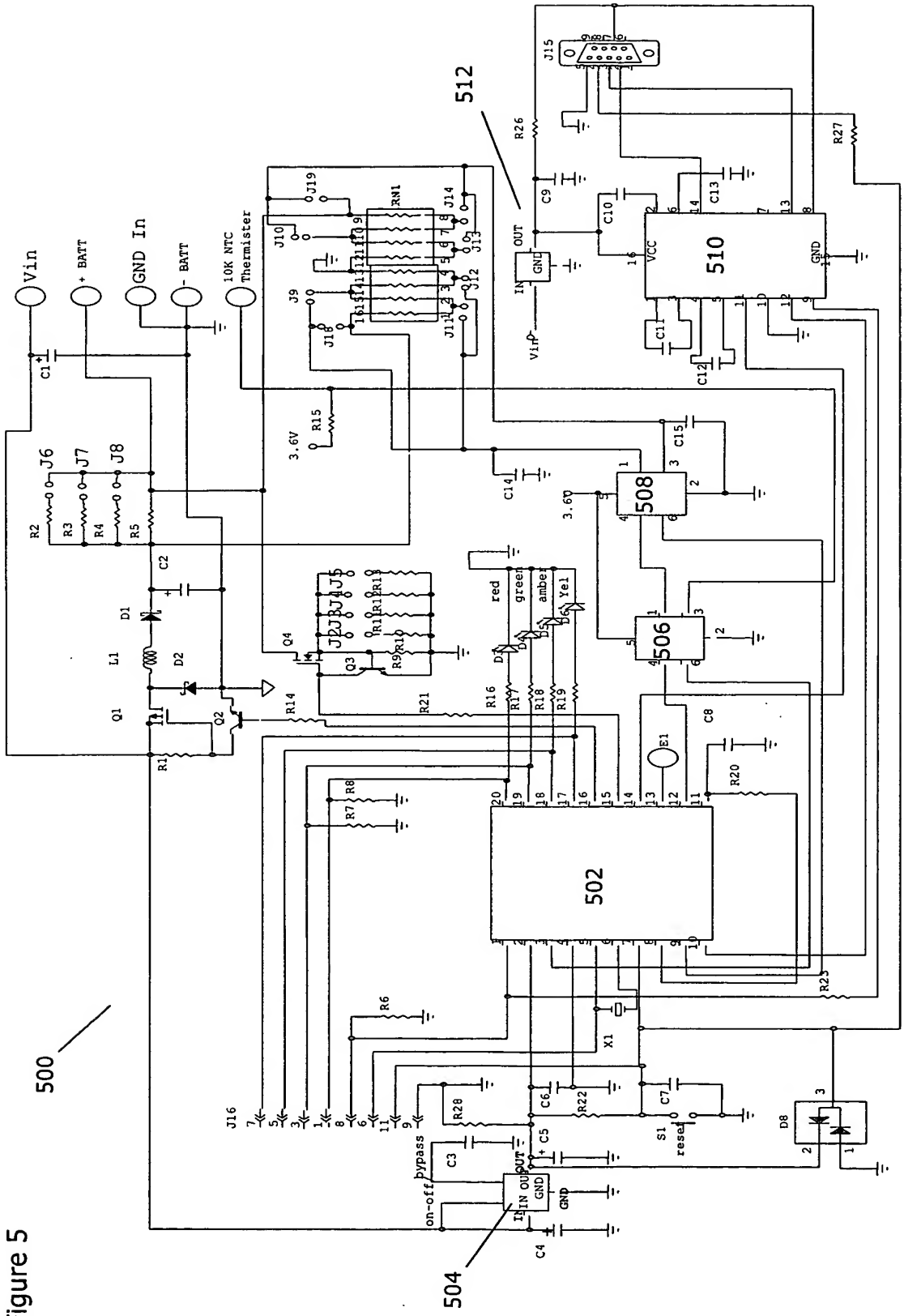
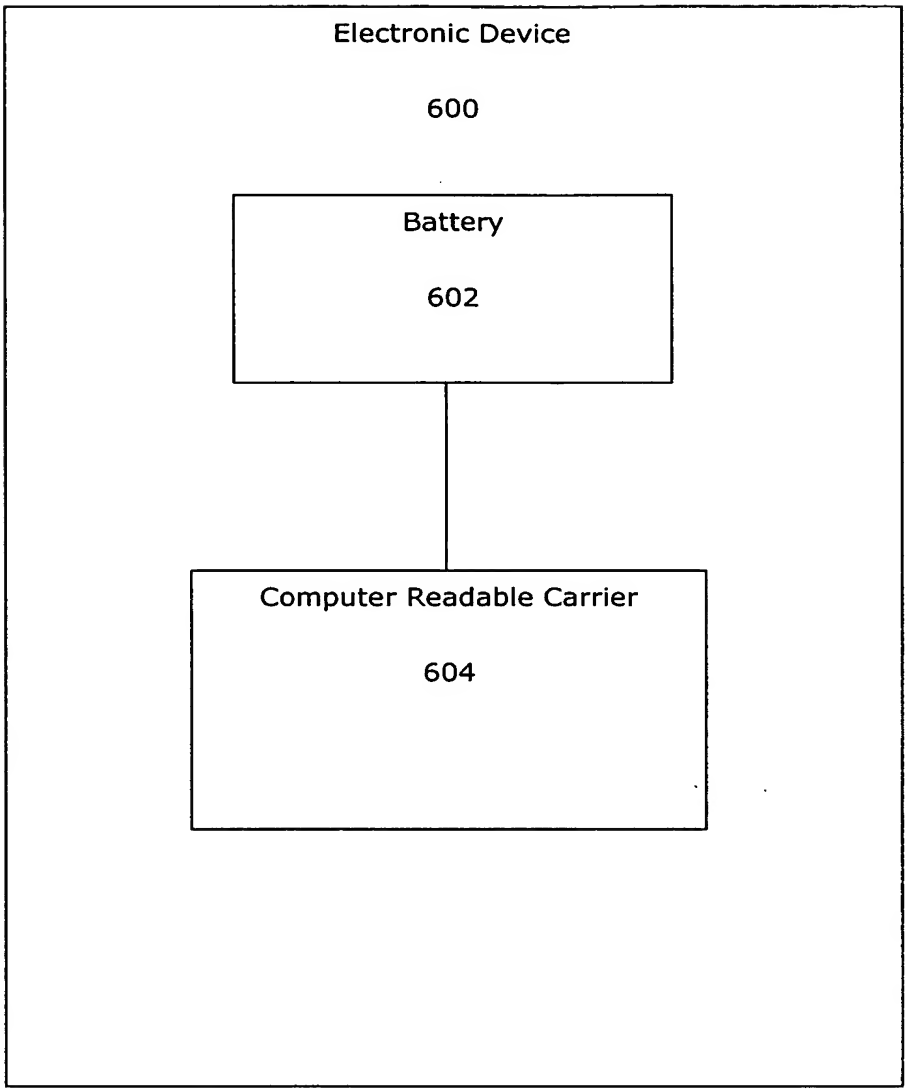

500
502
504
506
508
510
512
Vin
+ BATT
GND In
- BATT
10K NTC Thermister
3.6V
red
green
amber
Yel
bypass
on-off
reset
GND

Figure 5

Figure 6A


Electronic Device
600
Battery
602
Computer Readable Carrier
604

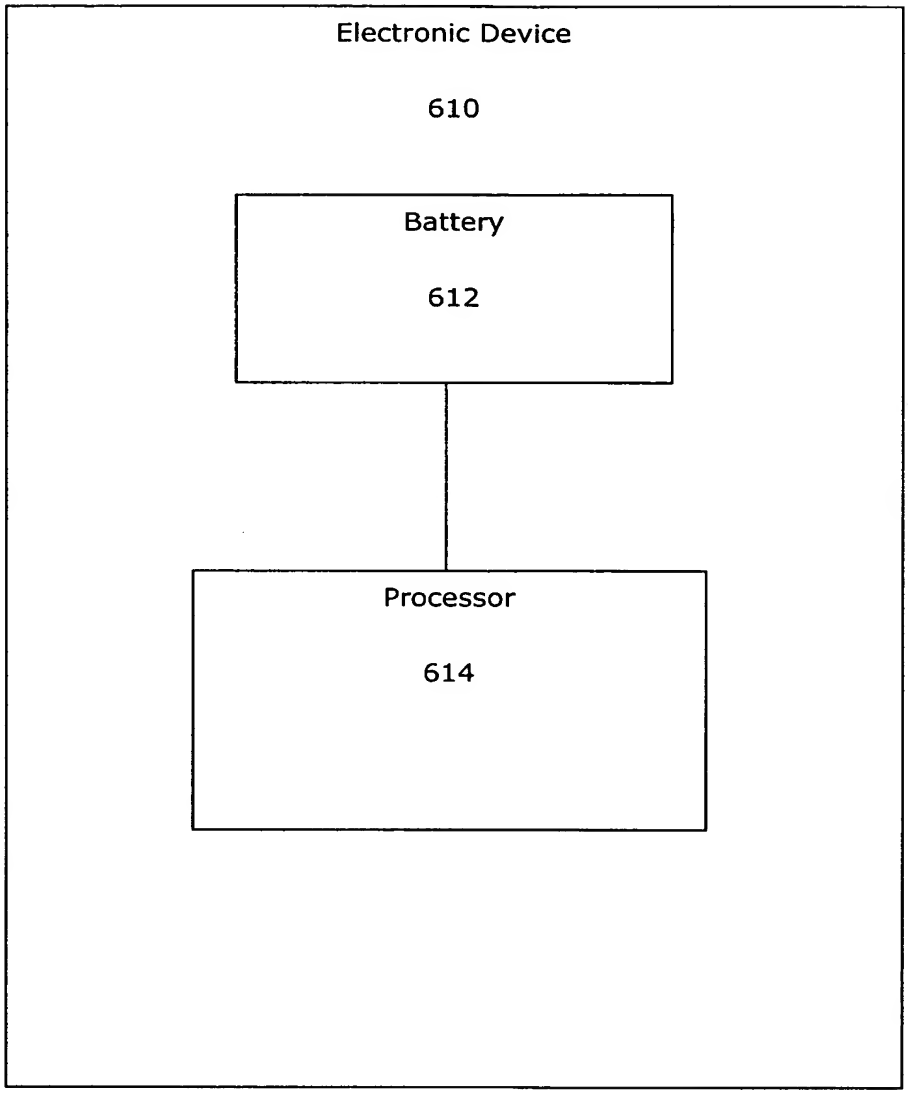



Figure 6B